Chapter 14
Special Wastes

This chapter describes the management and disposal systems for special wastes in Clark County. Special wastes are solid wastes that require special handling and are collected, processed recycled and/or disposed of separately from MSW. Special wastes include materials regulated as MSW, as well as other wastes regulated in other ways. Special wastes addressed in this chapter are:

- Medical (infectious) wastes;
- Paper Mill and other Mill wastes;
- Agricultural wastes (Pesticide and fertilizer containers, also see *Organic Waste* Chapter*);*
- White goods;
- Bulky wastes;
- Vehicle wastes: Hulks and Auto Fluff;
- Tires;
- Industrial wastewater sludges *(*also see *Organic Waste* Chapter*)*;
- Contaminated soil;
- Ash;
- Asbestos;
- Lead Based Paint;
- Dredge Spoils;
- Vactor Waste;
- Animal Carcasses;
- Disaster Debris;
- Other Special Wastes.

Also see *Construction and Demolition* Chapter for information on construction and demolition wastes. See *Organic Waste* Chapter for information on landclearing, agricultural wastes and biosolids sludges.

Note: A new rule for the management of biosolids (and septage) was adopted and became effective in 1998. Biosolids was removed from the definition of solid waste and the regulatory authority shifted from the local health department to the State Department of Ecology. Biosolids are included in the Clark County Solid Waste

Management Plan because of its potential for use as a feedstock in compost mixes and its inclusion in sludge definitions.

Medical Wastes

Also referred to as "red bag," infectious, biomedical or biohazardous wastes.

Definitions

WAC 173-304 generally defines "medical waste" as "all the infectious and injurious waste originating from a medical, veterinary or intermediate care facility." In 1994, the Southwest Washington Health District (SWWHD) adopted, via Resolution 94-27, an Infectious Waste Management Ordinance. This ordinance contains the following definitions for infectious waste:

- **Animal waste** — Waste animal carcasses, body parts and bedding of animals that are known to be infected with, or that have been inoculated with, human pathogenic microorganisms that are infectious to humans.
- **Biosafety Level 4 disease waste** — Materials contaminated with blood, excretions, exudates or secretions from humans or animals, who are isolated to protect others from highly communicable infectious diseases that have been identified as pathogenic organisms and assigned to Biosafety Level 4 by the Centers for Disease Control, National Institutes of Health, Biosafety in Microbiological and Biomedical Laboratories, current edition.
- **Cultures and stocks** — Wastes that are infectious to humans, including specimen cultures, cultures and stocks of etiologic agents, wastes from production of biologicals and serums, discarded live and attenuated vaccines and laboratory waste that has come into contact with cultures and stocks of etiologic agents or blood specimens. Such waste includes but is not limited to culture dishes, blood specimen tubes and devices used to transfer, inoculate and mix cultures.
- **Human blood and blood products** — Discarded waste human blood and blood components, and materials containing free-flowing blood and blood products.
- **Pathological waste** — Waste human source biopsy materials, tissues and anatomical parts that emanate from surgery, obstetrical procedures and autopsy. "Pathological waste" does not include teeth, human corpses, remains and anatomical parts that are intended for interment or cremation.
- **Sharps waste** — All hypodermic needles, syringes with needles attached, IV tubing with needles attached, scalpel blades and lancets that have been removed from their original sterile packages.

For the purposes of this Plan, medical waste is defined to include all of the definitions discussed in this section.

Regulations

There are federal and Washington State regulations directed specifically at the storage, transport and disposal of medical wastes. The State of Washington RCW 70.95K.010 establishes a uniform statewide definition for medical waste. The Washington State Utilities and Transportation Commission (WUTC) regulates the hauling of medical

wastes under its "G-certificates," issued under RCW 81.77 authority. Rules relating to the safe transportation of biohazardous or biomedical waste are found in WAC 480-70. The United States Department of Transportation also regulates the transportation of regulated medical waste over the highways in jurisdictions that fall beyond the WUTC in Title 49, Code of Federal Regulation, Parts 170-189. Incinerator burn requirements are found in RCW 70.95D and RCW 70.95.710.

The Oregon medical waste requirements must be observed by Washington State communities exporting waste to Oregon landfills. Oregon requirements apply to medical waste generated from medical facilities and residences. State of Oregon regulations ORS 459.386 through 459.405 and OAR 340-93 establish general rules pertaining to the management of infectious wastes in Oregon.

The SWWHD adopted an Infectious Waste Management Ordinance ("Ordinance") in October 1994. The Ordinance contains infectious waste segregation requirements for generators, requirements and standards for transporters, requirements and standards for storage/treatment facilities and biomedical waste disposal requirements.

Requirements for Generators

The Infectious Waste Ordinance requires all generators, whether individuals or institutions, within the SWWHD area (Clark and Skamania Counties) to segregate infectious waste from other solid wastes at the point of origin and not mix infectious waste with MSW. Additional separation is required for wastes with multiple hazards, such as waste that is both infectious and radioactive. Infectious waste containers must be placed in red or orange plastic bags or other containers, clearly marked with universal biohazard labels. Sharps must be placed in enclosed puncture-resistant containers. Infectious waste must be contained "...in a manner and at a location which affords protection from animals and the weather and does not provide a breeding place or a food source for insects, rodents or birds." The Ordinance also states that infectious waste must not be compacted prior to or during transport.

The most significant medical waste management issue is the safety of solid waste facility operators and haulers and medical waste facility personnel. There is a growing amount of medical waste in the residential waste stream. Currently there are pharmacies within Clark County, which are accepting used containerized syringes back from their customers. The contracted and certificated waste haulers in the cities and County will collect and transport small quantities of residentially generated sharps which have been placed in enclosed puncture-resistant containers. Medical (infectious) waste-certificated haulers provide collection services to larger generators of medical waste, such as hospitals, clinics, labs, veterinarian's etc.

Requirements for Transporters

The Ordinance states that only properly licensed and permitted transporters may provide infectious waste transportation services in the SWWHD area. Transporters may not accept waste that has not been properly handled or packaged by its generators. Infectious waste must be transported in leak-proof, fully enclosed containers or vehicle compartments that are not used for other solid wastes. Transporters must deliver infectious waste only to facilities that meet all federal, state and local requirements for infectious waste handling. People who manually load or unload containers of infectious waste must wear protective clothing and equipment. Equipment used to transport infectious waste must be clean and leak proof. Infectious wastes must not be compacted by the transporter.

Requirements for Storage/Treatment Facilities

The SWWHD Ordinance requires infectious waste storage and/or treatment facility owners to have and follow an infectious waste management plan. The plan must address: handling methods that ensure the segregation of infectious waste from other wastes and limit the number of persons handling wastes and exposure to employees and the public; preventing access by unauthorized persons; decontamination procedures for reusable infectious waste containers, vehicles, equipment and persons accidentally exposed to wastes; safety equipment for workers; and a contingency plan.

Currently, Clark County's medical waste is collected by Stericycle (having bought BFI), a small portion is collected from veterinary clinics, humane societies and animal control shelters by Petland Cemetary, Inc., a shipping container is stored at the Central Transfer Station until filled and then shipped to treatment facilities before ultimately being disposed in landfills or else are hauled directly to incineration facilities.

Generation

Infectious waste is generated in such places as hospitals, physicians' offices, clinics, nursing homes, private homes and veterinary offices in Clark County.

Table 14 -1 —Known Large Generators of Biomedical Wastes in Clark County		
Medical Facility	Collection Contractor	Annual Quantity (1998 estimates)
Southwest Washington Medical Center (St. Joseph)	Stericycle	178 (1999 tons by 11/99)
Southwest Washington Medical Center (Memorial)	Stericycle	6 (1999 tons by 11/99)
VA Medical Center,Vancouver	BFI	9.6
Alpha Therapeutic (blood center)	BFI	21.5
Kaiser-Permanente Vancouver Clinic	Stericycle	?
Vancouver Clinic	BFI	4.6
Contract accounts, miscellaneous veterinary, dentist, clinics, etc.	WMI, BFI, Stericycle, Petland Cemeteries	?
Red Cross Clark County Chapter Blood Mobile	BFI	3.5
Source: Based on a telephone survey performed by County staff in October 1999.		

Collection

Most medical waste generated by large generators in Clark County is collected by Stericycle (formerly B.F.I. Medical Waste Services of Washington, Inc. also collected medical waste) –the only remaining company in Washington State with a WUTC certificate to collect medical wastes. Stericycle collects untreated biomedical wastes that have been properly packaged from large and small biomedical waste generators in the greater Vancouver area. In 1998, Stericycle collected 162.86 tons in Clark County; tonnage collected by BFI in 1998 is unknown. Waste Management of Vancouver (WMV) also collects biomedical waste from customers within its service area. Some large generators are permitted to self-haul their biomedical waste to permitted disposal facilities.

Disposal

Biomedical wastes collected by Stericycle, WMI and self-haulers are transported to specialized biomedical waste management facilities. These facilities include MSW or specialized medical waste incinerators and macrowave or autoclave units that sterilize biomedical wastes. Clark County's pathological and chemotherapy waste is incinerated (at the Ogden/Martin Incinerator near Brooks, OR) as required by law. All other medical waste is processed at their facility located in Morton (Lewis County) and is rendered sterile through a heat (macrowaves) process also called "electrothermal deactivation". It is then ground up and shipped to a MSW landfill (Roosevelt Regional).

Quantities

The 1994 Plan estimated that the amount of biomedical waste generated annually in Clark County was between 250 and 300 tons. The increase was expected due to continued growth, as well as increased biomedical waste segregation by smaller generators. Some smaller generators may still be disposing biomedical waste with their general solid waste, although to a lesser degree than in the past due to the County's biomedical waste ordinance requirements, and an increased level of awareness and liability and the availability of collection services for smaller generators has likely reduced illegal and improper disposal.

Needs and Opportunities

Community Education Programs — Currently, many large- and small-quantity medical waste generators in Clark County appear to be properly informed and knowledgeable about proper biomedical wastes practices. However, with the growing amount of medical waste in the residential waste stream, education about correct management practices for some small and residential generators may be needed. A community education program, targeted at generators who make small quantities, could inform the community about the risks associated with biomedical wastes and the methods, opportunities and services available to properly store and dispose of them. Residential sharps generators need increased education about correct containers and the collection opportunities afforded them by pharmacies and their solid waste collector.

Intravenous Drug Users — One situation that poses a significant public health and safety hazard are syringes from intravenous drug users, which are left in public areas. Generally, an aggressive and coordinated approach, involving local law enforcement agencies, drug treatment agencies, the media and the community is the most effective way to manage problem.

Paper and Mill Wastes

This section specifically deals with the byproducts of mill production.

Definitions

Although WAC 173-304 groups wood waste with other processing byproducts, this section specifically addresses only the manufacturing byproducts of the County's paper mills, as well as other mills. (Wood waste recycling, including the management of wood waste at industrial facilities, is addressed in the chapters on *Construction and Demolition* and *Organic Wastes*.) These wastes include, but are not limited to waste water treatment sludges, calcium carbonate and mud waste.

Existing Conditions

WAC 173-304-462 regulates the disposal of wood wastes in wood waste landfills in the state of Washington. OAR 340-61-040 regulates wood waste disposal in Oregon.

Fort James currently operates Lady Island Landfill, a private landfill, adjacent to its Camas mill. This facility is permitted as a limited-purpose landfill, which may accept both wood waste and dried wastewater sludge. The mill generates incidental amounts of

wood waste since they stopped receiving whole logs in 1993. The mill does generate ash from their boiler that is powered by a combination of hog fuel and fossil fuel for energy recovery. Approximately 14,559 tons of ash (7,667 fly ash and 6,892 bottom ash) was generated in 1998, which was either placed in their limited-purpose landfill or hauled to a regional landfill.

Boise Cascade owns and operates Rufner Landfill, a private landfill, on N.W. Lower River Road in Vancouver. This facility is permitted as a limited-purpose landfill to accept primary clarifier fiber solids from the paper mill. Boise ceased generating ash and wood waste in April of 1996.

Quantities

Based on Fort James waste generation rate of the last several years (about 13,000 tons/year), the capacity of the Lady Island Landfill exceeds the 20-year period covered by this Plan.

Needs and Opportunities

Clark County should continue to encourage and support private sector efforts for the continued proper disposal of mill wastes. The county and cities should support and facilitate the efforts of pulp and paper manufacturing facilities to minimize landfilling through increased recycling and composting and the development of new applications to reuse these waste materials.

The following alternatives are available for the management and disposal of paper mill wastes in Clark County.

- Continued "own-use" landfilling at the Fort James and Boise Cascade mills;
- Processing to produce fuel or burning to generate energy for local and regional industries;
- Composting with other organic wastes, such as municipal sludges, industrial sludges, food wastes or yard wastes;
- Recycling into alternative wood products;
- Use as landfill cover material.

The County and cities should continue to allow the private sector to retain the responsibility for managing and disposing of its own wood wastes in the county. These private sector facilities are likely to continue using landfills and/or energy recovery to manage these wastes. However, the county and cities should support and encourage management practices to reduce and recycle these wastes, when feasible.

Agriculture Wastes

NOTE: See Organic Wastes Chapter for detailed **information about manure and crop residue.**

Definitions

WAC 173-304 defines "agricultural wastes" as "wastes on farms resulting from the production of agricultural products, including, but not limited to, manures and carcasses of dead animals weighing each or collectively in excess of fifteen pounds." Agriculture wastes consist of three general types of wastes: crop wastes; livestock wastes; and agricultural chemicals. Crop wastes include residues from grain, hay, vegetables, seed crop production and trimmings from fruit trees. Livestock wastes include manure and animal carcasses. Agricultural chemical wastes are composed primarily of empty agricultural chemical containers and banned or unused agricultural chemicals.

Existing Conditions

Agricultural wastes are regulated in Washington under WAC 173-304. In Oregon, agricultural wastes are regulated under OAR94-040.

Most agriculture waste generated in Clark County never enters the MSW stream. Instead, this waste is most often disposed on-site. The three principal methods for disposing of agricultural wastes on-site are:

- land application (manure and crop residue);
- burning (trimmings and crop residue);
- use as animal feed (crop residue).

NOTE: See Organic Wastes Chapter for an in depth discussion about manure and crop residue.

The agricultural wastes that typically enter the MSW stream are non-regulated agricultural chemical containers, small animal carcasses, and some minor amounts of crop residue and tree trimmings. These wastes are typically landfilled or composted. Most agricultural chemical containers can be returned to the manufacturer or supplier for reuse or disposal. These containers, if not properly rinsed, are generally regulated in Washington under WAC 173-303.

Quantities

The amount of agricultural waste generated in Clark County is difficult to determine because most agricultural wastes are currently disposed on-site. Information on the specific types and quantities of livestock that produce wastes or on the farm acreage and crops being cultivated in the county and cities is available through the WSU Cooperative.

The Washington Department of Agriculture has held pesticide collection days throughout the state. The intent is to collect and properly dispose of banned, "out-of-specification" and expired pesticides that cannot be applied to crops. In June 1998, the department collected about 5,690 pounds of agricultural hazardous wastes (weight does not include packaging) in Clark County from 16 parties. Data from similar programs in other states indicate that the amount collected represents only about 10 percent of the total amount of pesticides requiring disposal.

Needs and Opportunities

Education

Educational efforts for agricultural waste generators should focus on:

- The risks associated with agriculture-related practices;
- Disposal techniques and resources available to manage these wastes.

Clark County should work with the Natural Resources Conservation Service (formerly USDA Soil Conservation Service) and the Washington State Cooperative Extension Service (which is responsible for education) to develop and assist in implementing proper waste management practices in the county and cities, especially targeting hobby farms.

Waste Reduction, Recycling, and Composting

Clark County should encourage and support private sector efforts for the continued proper management of agricultural wastes. The county and cities could also support and facilitate efforts to minimize land disposal of these wastes by promoting waste reduction, recycling and composting opportunities and by developing new applications for these waste materials. In addition, local governments could support research and encourage agricultural waste generators to seek grants for implementing innovative handling and disposal methods.

NPDES Permitting

Ecology has implemented a water quality control program that requires people involved in certain agriculture-related land use activities, such as dairy farming, to obtain National Pollutant Discharge Elimination System (NPDES) wastewater discharge permits. The wastewater discharge permit requirement became effective in January 1992. The Natural Resources Conservation Service provides engineering support, management guidelines and technical assistance to dairy farmers who apply for these permits.

Agricultural Chemical Containers

Agricultural chemical containers are generally labeled with product use and waste disposal instructions to inform the users of proper handling procedures. The chemical residues in unrinsed containers are of special concern, because they can become concentrated and quite toxic in an empty container after the liquid evaporates. As a result, proper safeguards need to be taken during handling, and these containers must be properly rinsed before being recycled, reused, landfilled or incinerated.

White Goods

Existing Conditions

Large household appliances, also known as "white goods," are included under the definition of "bulky waste" in WAC 173-304 and are defined as enamel-coated appliances, such as washing machines, water heaters, clothes dryers, stoves, refrigerators and freezers. White goods are easily recycled after an appliance has been

stripped of insulation, plastic, glass, non-ferrous metals, chlorofluorocarbons (CFCs) and other contaminants. Most of the material in white goods is recyclable, but environmentally threatening components, such as PCB-contaminated capacitors in older appliances, mercury-containing switches and oil-filled compressors, can cause environmental contamination when damaged.

White goods can be picked up curbside by the garbage haulers and are also collected by several private companies in Clark County. In addition to appliance repair shops, they include the following:

- Cliff Koppe Metals, Inc.
- Certificated and contracted solid waste haulers
- Columbia Resources Company (transfer station)
- Informally contracted and vehicle hulk haulers

These companies charge a handling or stripping fee for appliances that are self-hauled to their drop-off facilities. WUTC-certificated and city-contracted haulers also provide curbside pickup of white goods upon request. Most white goods, after stripping, are recycled through Cliff Koppe Metals, Inc. in Vancouver, Schnitzer Steel Products Company or Acme Steel Company in Portland, Oregon. ORS 459.247 prohibits the disposal of appliances in landfills. White goods received at the CRC transfer stations are transported to St. Vincent de Paul in Lane County Oregon for rebuilding or stripping and recycling.

Quantities

Based on older waste composition analyses, Ecology estimates that about 4/10 of 1 percent of the municipal solid waste stream in Southwest Washington, or about 650 tons per year in Clark County, are white goods. Since CRC recovers all white goods entering their transfer facilties for recycling, no white goods from Clark County are landfilled.

Table 14-2 shows the results of a telephone survey of the major collection companies handling white goods in Clark County. Based on an average weight of 100 pounds per appliance, 3,000 appliances per year would weigh 150 tons.

Table 14-2
White Goods Quantities for 1998

Collection Company	Estimated Annual Quantity (appliances)
Metro Metals NW (formerly Cliff Koppe Metals, Inc.)	1,300 units
Columbia Resources Company	72.02 tons

Chlorofluorocarbon Refrigerants

Recent changes in state and federal regulations to control the release of CFCs into the atmosphere have significantly affected white goods handling. CFC refrigerants, such as Freon, are almost universally used in refrigerators, freezers and air-conditioning systems. In response to both the federal and state Clean Air Acts, no CFCs may be released from refrigeration, commercial or industrial appliances. As a result, venting Freon during white goods processing or disposal is no longer permitted. White goods processors must recover CFCs from appliances.

Ecology has adopted WAC 173-303-506, for the management of used or "spent" CFC refrigerants. The rule also conditionally exempts spent CFC refrigerants from WAC 173-303, Dangerous Waste Regulations, when they are reclaimed or recycled.

CRC Transfer Stations

The CRC transfer stations provide central locations for the collection of white goods and bulky wastes. The stations also assist in the distribution of public education materials concerning:

- recycling opportunities for oversized wastes;
- current handling requirements for white goods.

Bulky Wastes

Existing Conditions

WAC 173-304 defines "bulky waste" as large items of refuse, such as appliances, furniture and other oversized wastes, that would typically not fit into disposal containers. For the purposes of this Plan, bulky wastes do not include white goods, such as washing machines, water heaters, clothes dryers, stoves, refrigerators and freezers.

Currently, residential bulky wastes are not collected on regular routes by WUTC-regulated and -certificated private collection companies or the City of Camas collection utility. Certificated and contracted haulers provide on-call services for bulky wastes, but their charges can be significantly higher than informal collectors. A number of small private collection operators informally advertise, collect and dispose of these oversized wastes from residential generators. These operators make up a "network" of independent collectors and appear to be responsible for some of the illegal dumping that occurs in Clark County. The City of Vancouver sponsors annual neighborhood clean up events that focus on collecting bulky wastes.

Some bulky wastes from larger non-residential generators are collected by WUTC-regulated collection companies, and some bulky wastes are self-hauled by both residential and non-residential generators to CRC transfer stations. The inappropriate disposal of bulky wastes at unattended drop-off sites operated by charitable organizations has increased in recent years. This form of illegal dumping has placed a significant burden on these organizations, who then have to properly dispose of these wastes as described in the chapter on Enforcement.

Needs and Opportunities

Clark County needs to encourage and support private sector efforts to properly dispose of bulky wastes. The county and cities need to also support and encourage WUTC-regulated collection companies to provide convenient and cost-effective collection services for bulky wastes. Service by larger regulated collection companies could reduce the extent to which smaller operators collect bulky wastes and the frequency of illegal dumping. Data have not been compiled on the quantity of bulky wastes generated in Clark County.

Vehicle Wastes: Hulks and Auto Fluff

Note: Trailers and camper shells are considered MSW and bulky wastes, not vehicle hulks.

Existing Conditions

Code enforcement officers in the cities and Clark County, along with local law enforcement agencies, including the Clark County Sheriff's Department and the State Patrol, jointly administer the abandoned vehicle hulk management program in Clark County. Vehicle hulks are not specifically defined in WAC 173-304. For the purposes of this Plan, "vehicle hulks" are defined as abandoned or discarded vehicle bodies. ORS 459.247 prohibits the disposal of vehicle hulks in landfills.

When an abandoned vehicle is determined to be a public nuisance, one of these agencies contacts the property owner and requests that the vehicle be removed or stored out of sight. If the registered owner of the vehicle cannot be located or is not responsible, the affected property owner can be authorized by the local law enforcement agency to have the vehicle towed and scrapped. Noncompliance with the request will result in the agency getting a licensed hulk hauler to remove the vehicle. Sometimes the vehicles are filled with garbage, which creates additional costs.

Local wrecking yards and metal recyclers also accept vehicles for disposal when accompanied by a title certificate proving ownership. Auto hulks have fluids, CFCs, air

bags and tires removed, and then they are crushed and transported to the auto shredder operation at Schnitzer Steel Products Company in Portland. Pacific Coast Shredding LLC, the first new auto shredder operation in the region in 25 years, opened in the beginning of 2000. It is located at the Port of Vancouver.

Needs and Opportunities

Certain vehicle components, when processed, can produce hazardous or undesirable environmental conditions, if improperly handled. These components include the CFCs in Freon used in air conditioners, air bag inflation canisters and "fluff," resulting from the shredding of the non-metal portions of vehicle hulks. These components can have hazardous characteristics and are regulated under different federal and state rules. Final owners and small processors of vehicles need to be educated and encouraged to use proper handling techniques.

Tires

Definitions

RCW 70.95 defines "waste tires" as "tires that are no longer suitable for their original intended purpose because of wear, damage or defect." It defines "storage" or "storing of tires" as "the placing of more than 800 waste tires in a manner that does not constitute final disposal of the waste tires." It defines "transportation" or "transporting" as "picking up or transporting waste tires for the purpose of storage or final disposal."

Regulations

RCW 70.95.500 requires that only authorized sites be used for tire storage or disposal of vehicle tires. Other disposal on land or in water is illegal and is punishable by a civil penalty, which shall not be less than $200, nor more than $2,000 for each offense.

For a five-year period after its 1989 adoption, RCW 70.95.510 directed the assessment of a $1 per tire charge on the retail sale of new vehicle tires. The funds raised from this surcharge were used for a variety of used tire programs and studies including enforcement, public information, product marketing studies for recycled tires, pilot studies and clean up of unauthorized tire stockpiles. The state legislature allowed this surcharge to "sunset" in 1994 by not reauthorizing the statute.

WAC 173-304-420 established general facility standards for temporary storage of piles of used vehicle tires. In Oregon, waste tires are regulated under ORS 459.705, ORS 459.790, and OAR 340-93-040. ORS 459.247 prohibits the disposal of whole passenger vehicle tires in landfills. Off-road and chipped tires are allowed in landfills.

Existing Conditions

Currently, waste tires are accepted from self-haul residential and non-residential generators at the CRC transfer station. The waste tires are separated from other materials and stored in drop boxes that are later transported to Finley Buttes Landfill; 122.06 tons were collected in 1998. Waste Recovery in Portland shreds the tires to

produce fuel chips. Waste tires are also collected by retail tire outlets and stored for later transport to processing facilities. Large retail outlets transport their waste tires to various operations. Some waste tires are sent to IRT, a Tacoma operation, which shreds tires for tire, derived fuel (TDF). One large tire company owns its own shredder and sends some shredded tire material for truckbed liners and the remainder is landfilled. Currently, most waste tires generated within the County are shredded and then landfilled. Very little is going to tire derived fuel (TDF) or to be recycled into new products.

Illegal dumping of tires is an ongoing concern. Tire piles are an ideal breeding ground for mosquitoes and a popular habitat for rodents, which are a public health concern because they can transmit disease. Tire piles can also be a threat to public safety because they catch fire easily and can be very difficult to put out. Clark County did have three illegal waste tire piles. All three have been cleaned up using funds from the State's Tire Account, before the surcharge fund had been exhausted. In addition, road crews routinely collect abandoned tires from along roadways. Tires are temporarily stored at county maintenance facilities before transport to processing facilities.

The City of Vancouver's Spring Clean-up program accepts tires for recycling from City residents at no charge. A limited number of tires are accepted without charge in this program, although only City residents are eligible to participate.

Needs and Opportunities

Education

Ecology estimates that each person in the state generates one tire per year. In Clark County, this results in the generation of approximately 326,943 waste tires (based on population figures from July 1998), or approximately 4,875 tons, based on an average weight of 30 pounds per tire. In 1998, 257. 25 tons of waste tires were disposed through the transfer stations. This is significantly lower than the estimated tonnage of waste tires, which would be generated. This difference could be accounted for by tires being processed by other processors tires being stockpiled or tires being illegally disposed. There is a need to educate the general public, small retail outlets, gas stations and farm equipment suppliers about current regulations and opportunities for proper tire disposal and recycling in Clark County. Education programs should inform the general public about the costs of cleaning up illegal dumping sites and restoring them to their former condition. Community education could reduce the extent to which waste tires are abandoned and illegally disposed in Clark County.

Recycling, Reuse and Waste Diversion

There are several opportunities to recycle, reuse or recovery0 energy from used tires. Retreading is a cost-effective option, depending on if the tire is retreadable and based on the price on new tires.

Chipped or shredded tires can be mixed with conventional asphalt to produce a rubber asphalt. Several companies have developed a rubber asphalt, which has less roadway cracking, faster ice breakup, shorter stopping distances and greater durability than traditional asphalt. There have been a few isolated cases where the rubber asphalt roadway caught fire and smoldered while attempts to put out the fire failed. Research

and development has continued to determine optimum shred size, composition and other contributing factors.

In addition, whole or processed tires can be used to make playground equipment, running tracks, dock bumpers, highway safety barriers and concrete forms. They may also be used as breakwaters and artificial reefs, to control erosion, surface pads for horse arenas and even used as lightweight fill. These applications use only a small portion of the waste tires generated within the region.

Landfill diversion alternatives include incineration of whole or chipped tires for crumb rubber or fuel in cement kilns or pyrolysis, in which tires are heated to recover constituent materials.

Two of the three permitted tire processors which existed in the within the Clark County region in 1998 have closed. Waste Recovery West is an existing processor.

Industrial Plant Sludge

Note: Municipal Wastewater Treatment Plant Sludge is discussed in the *Organic Wastes* Chapter. Septage, a semi-solid from septic tank systems and portable chemical toilets, is delivered to wastewater treatment plants. The State adopted a biosolids rule in February 1998. The rule took biosolids out of the solid waste stream and removed it from the regulatory authority of the local health district and into another regulatory structure administered by the State Department of Ecology.

Regulations

WAC 173-304 defines "sludge" as "a semi-solid substance consisting of settled sewage solids, combined with varying amounts of water and dissolved materials generated from a wastewater treatment plant or other source."

RCW 70.95J defines "biosolids" as "municipal sewage sludge that is a primarily organic, semi-solid product resulting from the wastewater treatment process, that can be beneficially recycled and meets all requirements of the chapter." Biosolids also include septage.

WAC 173-308 was adopted in 1998 in order to advance the 1992 enactment of RCW 70.95J and to implement federal regulations. This rule governs wastewater treatment plant by-products. It includes provisions for permitting and enforcement of regulations and provides for a partnership with local health officers to administer the rules.

National Pollutant Discharge Elimination Systems (NPDES) permit is renewable permits (every five years) which each industrial and municipal wastewater treatment plant must hold. The permit regulates the quality and quantity of effluent, as well as the manner of disposition of wastewater treatment by-products.

Wastewater treatment by-products are regulated by the U.S. EPA National Sewage Sludge Use and Disposal Regulation, codified as 40 CFR Part 503, effective March 22, 1993. The Part 503 regulations establish classifications of sewage sludge/biosolids, based on the treatment plant's performance and design for pathogen reduction and presence of particular constituents, especially heavy metals. Part 503 is enforced

through the NPDES permit system and Clean Water Act regulations, as well as through enforcement powers delegated to respective states.

The SWWHD regulates industrial sludge as solid waste in Clark County. Future SWWHD permitting and regulation of wastewater treatment by-products will be subject to WAC 173-308, upon adoption by Ecology.

In Oregon, sludge disposal is regulated by DEQ under OAR 340-94-040.

Existing Conditions

Permitting and regulation of wastewater treatment by-products is subject to WAC 173-308, with oversight provided by Ecology and the local Health District with delegated authority.

The amount of industrial sludge generated in Clark County is largely unknown. Several known generators are SEH and Fort James.

Management Planning

The county and cities should consider the development a comprehensive sludge management plan for both municipal and industrial generators in Clark County. Several municipal sewage and industrial wastewater sludge generators are currently reviewing their sludge management plans with particular emphasis on sludge disposal. With a comprehensive countywide plan, an integrated public and private sector management approach could be developed, if conditions are favorable to this approach.

Needs and Opportunities

Several management alternatives are available for the treatment and disposal of sludges. These include:

- Incineration of sludge; or
- Landfilling of sludge or disposal in a surface impoundment.

Sludges can be incinerated, if liquids are reduced enough to allow the organic material to burn. However, a supplemental fuel is often needed to start and maintain combustion. Most sludges that are incinerated are untreated and extensively dewatered prior to the incineration. Incinerator ash must then be properly disposed at permitted facilities.

Landfilling of sludge is generally not a practical alternative, due to the limitations on liquid content set by WAC 173-304. However, sludges can be either temporarily or permanently stored in surface impoundments. Industrial sludge that has been dewatered and combined with bulking agents has been successfully used as a daily cover material at landfills.

Contaminated Soils

Definitions

Petroleum or other types of contaminated soils are not defined in WAC 173-304 or RCW 70.95. However, WAC 173-304 defines problem wastes as "…soils removed during the cleanup of a remedial action site, or a dangerous waste site closure or other cleanup efforts and actions and which contain harmful substances but are not designated dangerous wastes." WAC 173-303 should be reviewed for possible applicability.

Regulations

Ecology has established guidance for the handling and disposal of petroleum-contaminated soils in Washington. These rules are contained in Guidance for Remediation of Releases from Underground Storage Tanks (WDOE 91-30). In Oregon, petroleum-contaminated soils are regulated under OAR 340-93-170.

Current Practices

Until recently, most of the contaminated soil generated in Clark County appeared to be disposed at a limited waste landfill in Washington County, Oregon. The Oregon Department of Environmental Quality requires laboratory analysis of the contaminated soils before disposal to ensure that they comply with DEQ contaminant limitations.

One landfill estimates that it disposes of approximately 5,000 tons of petroleum-contaminated soil each year from Clark County. Approximately 110 tons went through the transfer station system in 1998. Significant quantities probably are being disposed or treated elsewhere. The main source of contaminated soils is underground storage tank removal and remediation at service stations and private fueling stations. Removal and remediation activities for petroleum tank soils are expected to decline with the removal program deadline at the end of 1998.

Other landfills in Southern Washington and Northern Oregon are permitted to dispose of petroleum-contaminated soils, including the Roosevelt Regional Landfill in Klickitat County, Washington; the North Wasco County Landfill in Wasco County, Oregon; the Finley Buttes Landfill in Morrow County, Oregon; and the Columbia Ridge Landfill in Gilliam County, Oregon. Petroleum-contaminated soils can also be delivered to the CRC transfer stations, with advance notice.

More recently, larger amounts of contaminated soils have been treated rather than being disposed at landfills. TPST is the one petroleum-contaminated soil treatment facility exists in the greater Portland, Oregon, area. The facility uses a thermal destruction treatment process to remove petroleum contaminants from soils.

On-site treatment is being used more often as an economical treatment method for petroleum-contaminated soils. A number of on-site treatments are available, including vapor-extraction and bio-remediation ("land farming") in which soils are periodically turned to encourage biological and chemical degradation of contaminants. On-site treatment has become more popular due to avoided transportation and off-site treatment costs. On-site treatment is not feasible if the site must be ready for use in a short time or when site conditions, including location or soil saturation, make on-site

treatment unwise. If onsite treatment is used, SWAPCA regulates the site of emissions and requires a permit for the site.

Appropriate Treatment

NOTE: These soils must be handled in accordance with WAC 173-303 (Dangerous Wastes). Guidance should be obtained from Ecology on this issue.
Some petroleum-contaminated soils can be treated on-site to lower their contamination levels. Once contamination levels are reduced, treated soils can then be left on-site or may require disposal in a permitted landfill. The level of treatment required can be impacted by the ultimate intended use of the land. The County and cities need to support and encourage the private sector to use appropriate treatments for petroleum-contaminated soils. These treatments could minimize the amount of soil being exported from Clark County.

In addition to contaminated soils being properly treated, used petroleum storage tanks need to be correctly handled and disposed.

Needs and Opportunities

The County should track the generation and the flow of petroleum-contaminated soils in Clark County in order to provide better planning. The County could coordinate with Ecology to obtain the information.

Ash

Definition

WAC 173-304 defines "ash" as "residue including any air pollution flue dusts from combustion or incineration of material including solid wastes."

Regulations

Ash from MSW incineration is regulated under RCW 70.138 and WAC 173-306 in Washington. Ash from other forms of incineration, such as sludge or wood waste incineration, is regulated under WAC 173-303 or 173-304, depending on the characteristics of the ash. In Oregon, MSW ash is regulated by DEQ under OAR 340-93-190.

Quantities

The City of Vancouver Westside Wastewater Treatment Plant currently incinerates its de-watered sludge and grit, which is delivered to West Van for transport and disposal at the Finley Buttes Landfill. Solids from the Marine Park Wastewater Treatment Plant are also handled at the Westside Plant. Recent process modifications increase the ash moisture content from around 5% to about 40% and reduce the need to handle the grit separately. The City of Vancouver Westside Wastewater Treatment Plant reports that the annual quantities of incinerated sludge ash that it will generate with the noted process improvements range from about 6,200 cubic yards (2,500 tons) to 7,800 cubic yards (3,100 tons).

There are other industrial ash generators in Clark County. The Fort James mill has completed its overhaul and upgrade of their plant's boiler. Ft. James had completed the registration process with the State Agriculture Dept for utilizing the fly ash as a soil amendment. This material was applied to various parcels of land in Clark County for the past several years but the practice was recently discontinued because of the possible EPA tightening of the rules regarding dioxin. The ash is now being landfilled at Finley Buttes. The Fort James mill indicates that the annual amount of hog fuel boiler ash it has generated and landfilled has varied considerably from year to year. In 1998, the amount of ash waste generated was 14,559 tons. The Boise Cascade mill closed down the waste generating operation and has not produced ash since that time in April 1996.

Needs and Opportunities

Proper ash management has been a concern of the public and private sector. The concern is due to the potential toxicity of leachate produced from ash. Some ash is already classified as a hazardous waste, based on federal RCRA hazardous waste regulations and state dangerous waste management and disposal regulations. At present, EPA, Ecology and SWWHD do not have regulations for the testing and disposal of ash unless it has been derived from MSW incineration. Management alternatives for the reuse and disposal of ash include the following:

- Landfilling of ash;
- Use as an additive to cement mixtures;
- Use in road construction as part of the underlayment system;
- Use as an admixture in a low-permeability soil barrier layer;
- Composting.

Landfilling is the most conventional method of ash disposal. However, landfilling must fully comply with federal and state regulations to minimize the possibility of leachate formation and subsurface contamination. If the SWWHD were to determine that the leachates produced by the ash were hazardous or warranted special protections, the ash would have to be exported to a RCRA-permitted site and landfilled in a hazardous waste disposal facility.

When ash is used as an additive to a cement mixture, the potential for leaching from the ash is reduced because it is encased in cement. The resulting concrete is weaker than portland cement concrete, but is often adequate for light-duty purposes. Other Pacific Northwest communities, such as Spokane, Washington, have successfully used ash as a component of a roadway underlayment system.

Ash can also be used as a construction or operational component of a landfill. For example, Cowlitz County, Washington has used an ash-sludge mixture as daily cover for its landfill, and King County, Washington has used ash as a low-permeability admixture in the construction of a bottom containment liner for a landfill.

Asbestos

Definitions

Asbestos is defined in 4D CFR Part 61, SWAPCA 476 and WAC 296-65. Asbestos is the commercial term for a group of highly fibrous minerals that readily separate into long thin microscopic fibers. The fibers are heat resistant and chemically inert and possess a high electric thermal insulation. As a result, asbestos was used when a non-combustible, non-conducting or chemically resistant material was required. The fibers are considered a carcinogenic air pollutant, when inhaled.

Regulations

Asbestos is regulated at the federal level under 40 CFR Part 762 Title 40. The U.S. EPA issued new National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations in 1990 that place additional reporting and operation requirements on landfill operators who accept asbestos-containing waste.

Friable asbestos is regulated in Washington under WAC 173-303; in Clark County by Southwest Washington Air Pollution Control Authority Southwest Air Pollution Control Authority (SWAPCA) under SWAPCA 476 and Labor & Industries under WAC 296-65. SWAPCA issues permits for asbestos removal and demolition. In Oregon, asbestos is regulated by DEQ under OAR 340-25.

Current Practices

SWAPCA reports 487,565 sq. ft. of friable asbestos in 1998 from 5 counties. About 100 tons were handled through the transfer station system in 1998. Currently, most self-hauled asbestos waste in the County appears to be disposed at the Hillsboro Landfill in Washington County, Oregon and through the CRC transfer station system.

Asbestos disposal at the landfill and transfer station facilities is restricted to a limited time each week when trained personnel are available to oversee the unloading and disposal of the waste. The asbestos waste hauler is responsible for providing trained asbestos handling personnel to unload bagged asbestos waste by hand and place the wastes in the designated fill area. Asbestos must be properly bagged and sealed before the facility will accept it.

Other landfills permitted to dispose of asbestos include Roosevelt Regional Landfill in Klickitat County, Washington; North Wasco County Landfill in Wasco County, Oregon; Finley Buttes Landfill in Morrow County, Oregon; and Columbia Ridge Landfill in Gilliam County, Oregon.

The general trend in asbestos control is toward decreased generation of material that requires disposal. Risk of exposure is now considered to be lower when asbestos is left intact or treated with a sealant, when flaking occurs. SWAPCA is developing an education program aimed at notifying homeowners that they can only remove the asbestos in their owner-occupied dwelling so long as they follow all of the rules which an approved contractor must follow. Homeowners are not allowed to remove the asbestos in their rental properties.

Needs and Opportunities

There is a need to educate the homeowners and remodelers about the proper handling and disposal methods and opportunities for asbestos. The County should work with SWAPCA to develop information and outreach strategies.

Clark County should continue to support private sector efforts for the continued proper disposal of asbestos. At present, no evidence indicates that the practice of landfilling of asbestos waste is adversely affecting public health and safety or the environment. The county and cities should continue to allow the private sector to be the primary provider of services for the collection and disposal of asbestos.

The U.S. EPA maintains a database on asbestos removal projects. This database is called the National Asbestos Reporting System (NARS). Much of the asbestos waste will result from demolition and reconstruction projects, the quantities generated in the future will depend, in part, on the extent of economic growth and activity in Clark County.

Dredge Spoils

Dredge spoils consist of soils and other organic materials generated by dredging operations. Dredge spoils are often used as upland fill and generally do not enter the MSW handling and disposal system unless testing reveals contaminants. If contaminants are found, the spoils would be classified as a Dangerous Waste and require special disposal.

Existing Conditions

Dredge spoils are subject to the same waste designation rules as contaminated soils. Independent testing and the SWWHD approval are required before dredge spoils will be accepted for landfilling. In addition, dredge spoils must be dewatered before they are accepted for disposal. Dewatered and dried dredge spoils are acceptable cover material at Finally Buttes and other landfills in Washington and Oregon. If testing reveals the contamination is below certain levels, spoils can be used as fill with certain conditions.
The Ports of Vancouver and Ridgefield have current dredging operations and are planning larger dredging projects for the near future.

Needs and Opportunities

CRC, Finley Buttes and other landfills are prepared to accept dredge spoils. All dredge spoils are tested for contaminants prior to being required to have special handling and also before being accepted for disposal. The primary management concern is whether capacity at Finley Buttes or other landfills should be consumed by dredge spoils.

Other Special Wastes

Other special wastes in Clark County require proper hauling and disposal. These wastes are usually generated in smaller quantities than the special wastes described in

detail in this chapter. These other wastes should be considered "solid wastes" as defined in RCW 70.95 and should be managed in accordance with applicable federal, state and local regulations and statutes, including RCW 70.95, WAC 173-304, ORS 459.055 (Oregon), and OAR 340-93-190 (Oregon).

These other special wastes include:

- Street sweeping debris
  Existing Conditions:
  The City of Vancouver delivers street sweepings to local permitted compost facilities (West Van/H&H). During 1997 approximately 2,500 cubic yards were collected. The material is screened to remove garbage. Twenty percent is disposed with the remaining 80 percent turned into compost. Clark County collected 11,600 cubic yards of street sweepings during 1997. The material is stored at county pits. When a large enough pile is accumulated a large trommel screen is brought on site to remove the garbage. The remaining 80 percent of organic material is used to reclaim the pits.

- Catch basin (vactor) cleanout waste;
  Existing Conditions:
  May 1998 the County opened a new decant facility to process vactor waste. County crews collected approximately 2,300 cubic yards of vactor waste during 1997.

  The City of Vancouver collected 400 tons during 1997. The material was tested for total parts hydocarbon (TPH). 50 percent of the material was disposed of at the landfill due to high hydrocarbon levels and the remaining material was applied as fill/roadbase.

Needs and Opportunities:

The County's new decant facility was sized to allow for use by the City of Vancouver, the Department of Transportation and other public agencies. Facilities for private service providers do not exist.

- Vehicle wash debris;
- Restaurant greases;
- Storage compartment wastes from ships;
- Animal carcasses**;**
- Lead paint;
- Asphalt;
- Disaster debris.

Identifying and authorizing proper disposal of special wastes. SWWHD, Ecology and County/city staff work with the generators of questionable or unknown waste to inform them of the relevant State and local regulations, as well as the potential environmental and human health risks posed by a given wastes materials. Occasionally when suspect wastes arrive at the facility, the SWWHD works with the permitted solid waste facilities

that accept wastes. A process for waste identification and disposal could provide a mechanism to reviewing and authorizing the appropriate disposal of certain wastes. Such a process could include review of information from the waste generator, a sampling and analysis, inspection of the waste generation process, determination and appropriate disposal options, development of policies and procedures related to such a program, and education regarding various waste streams. Staff of the various agencies could then begin to work with businesses on a more industry-wide basis. Business types most likely to generate waste that are marginal for landfilling could be identified and contacted.

Table 14-3

Special Wastes Disposed Through CRC During 1998 (Tons)

Industrial Ash	0.11
Industrial Waste	7536.6
Contaminated Soil	108.15
Wastewaster Treatment Plant Ash	1534.96
Asbestos	98.35
Aluminum Smelt Waste	1981.99
Totals	**11260.16**

Source: Columbia Resource Company – 1998 Annual Operating Report

Recommended Alternatives

1. *Continue to allow the private sector to be the primary provider of collection, transportation and disposal services for medical wastes.*

2. *The County should be working with the WUTC to prepare a contingency plan for the collection, treatment and disposal of medical waste in the event that the current private-sector-based system can no longer provide proper service.*

3. *Consider on-site portable autoclaving (mobile units) as an alternative to collection and offsite processing of medical wastes.*

4. *Continue to allow the legal private sector haulers to be the primary provider of services for the collection, processing and recycling of white goods, bulky wastes, vehicle hulks, tires, petroleum-contaminated soils, ash.*

5. *Investigate and, if feasible, encourage the commercial and industrial waste generators to consider alternatives to landfilling.*

6. *Coordinate with other agencies for the continued measurement of mill and agricultural wastes. Establish and/or maintain a tracking and measurement system for special waste*

materials, such as white goods, bulky wastes, vehicle hulks, tires, contaminated soils and ash, to determine generation rate and management.

7. *Support the locating and establishment of additional grease trap processors in the Clark County/Portland area.*

8. *Develop alternatives for private companies' decanting and disposal options for vactor (catch basin) waste and street sweepings.*

9. *The County should develop safe asbestos disposal information that targets homebuilders and remodelers.*

10. *Work with the State to reinstate the advanced disposal fee on tires.*

11. *Develop a process to determine if materials would be identified and therefore handled as special waste or not.*